PATENT SPECIFICATION

NO DRAWINGS

906,870

Date of Application and filing Complete Specification: March 2, 1959.

No. 7234/59.

Application made in Germany (No. F25143) on Feb. 28, 1958.

Complete Specification Published: Sept. 26, 1962.

SPECIFICATION NO. 906,870

The inventor of this invention in the sense of being the actual deviser thereof within the meaning of Section 16 of the Patents Act 1949 is Ernst Gottsacker, Robert-Koch-Platz 2, Wuppertal-Barmen, Germany, of German nationality.

THE PATENT OFFICE,
26th October, 1962

DS 68617/1(10)/R.109 200 10/62 PL

...which it is to be performed, to be particularly described in and by the following statement:—

The present invention is concerned with skin disinfectants and, more particularly, with preparations containing as skin disinfectant a glycol mono-ether of a low molecular weight aliphatic alcohol.

In Specification No. 511,599 there is described a method of clarifying the atmosphere which consists in distributing vapours obtained by vapourising, by heating if necessary, a composition containing (1) an organic compound having an SO_2 group attached to an alkyl or aryl radical or a substituted alkyl or aryl radical and (2) a glycol or an ether or an ester or an anhydride of a glycol. As examples of such compositions, this Specification mentions a mixture of 3 parts by volume of the monoethyl ether of ethylene glycol, 1 part by volume of the monoacetate of ethylene glycol and 2 parts by volume of the sodium salt of sulphonated ricinoleic acid, as well as a mixture of 1 part by volume of propylene alcohols containing not more than 6 carbon atoms, especially of ethyl, propyl and butyl alcohols, are excellently suited as skin disinfectants.

This is surprising, since aqueous solutions of glycol mono-alkyl ethers of the aforesaid kind possess, *in vitro*, a germ killing powder which is essentially smaller than the germ killing powder of aqueous solutions of the usual disinfectants of the quaternary ammonium type which contain, on the nitrogen atom, an aliphatic hydrocarbon residue containing at least 9 carbon atoms, and the germ killing power of these quaternary ammonium compounds is insufficient on the skin. This is also the reason why glycol mono-alkyl ethers have hitherto never been used as a skin disinfectant, for example, in medical practice for the disinfection of the hands.

The invention of the activity relation may be further illustrated by way of the following Table:—

[*Price 4s. 6d.*]

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Index at acceptance:—Class 81(1), B1(H:S), E1A3A4, E1A4A(2:3).

International Classification:—A61k, l.

COMPLETE SPECIFICATION

Skin Disinfectant Compositions

We, FARBENFABRIKEN BAYER AKTIENGELLSCHAFT, a body corporate organised under the laws of Germany, of 22c, Leverkusen-Bayerwerk, Germany, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention is concerned with skin disinfectants and, more particularly, with preparations containing as skin disinfectant a glycol mono-ether of a low molecular weight aliphatic alcohol.

In Specification No. 511,599 there is described a method of clarifying the atmosphere which consists in distributing vapours obtained by vapourising, by heating if necessary, a composition containing (1) an organic compound having an SO_2 group attached to an alkyl or aryl radical or a substituted alkyl or aryl radical and (2) a glycol or an ether or an ester or an anhydride of a glycol. As examples of such compositions, this Specification mentions a mixture of 3 parts by volume of the monoethyl ether of ethylene glycol, 1 part by volume of the monoacetate of ethylene glycol and 2 parts by volume of the sodium salt of sulphonated ricinoleic acid, as well as a mixture of 1 part by volume of propylene glycol, 1 part by volume of the monoethyl ether of ethylene glycol, 0.25 parts by volume of 40% formaldehyde and 1 part by volume of sulphonated coconut oil.

The present invention is based upon the discovery that glycol monoethers of aliphatic alcohols containing not more than 6 carbon atoms, especially of ethyl, propyl and butyl alcohols, are excellently suited as skin disinfectants.

This is surprising, since aqueous solutions of glycol mono-alkyl ethers of the aforesaid kind possess, *in vitro*, a germ killing powder which is essentially smaller than the germ killing powder of aqueous solutions of the usual disinfectants of the quaternary ammonium type which contain, on the nitrogen atom, an aliphatic hydrocarbon residue containing at least 9 carbon atoms, and the germ killing power of these quaternary ammonium compounds is insufficient on the skin. This is also the reason why glycol mono-alkyl ethers have hitherto never been used as a skin disinfectant, for example, in medical practice for the disinfection of the hands.

The invention of the activity relation may be further illustrated by way of the following Table:—

[*Price 4s. 6d.*]

TABLE

	disinfecting effect *in vitro* a	disinfecting effect on the skin b
Glycol mono-ethyl ether	1 : 2 Killing 1 : 20 no Killing	in 80% of cases Killing
Glycol mono-propyl ether	1 : 2 Killing 1 : 20 no Killing	in 100% of cases Killing
Glycol mono-butyl ether	1 : 2 Killing 1 : 20 no Killing	in 100% of cases Killing
Dimethyl-dodecyl-benzyl-ammonium chloride	1 : 5000 Killing	in 46% of cases Killing
Dimethyl-dodecyl-3,4-dichlorobenzyl-ammonium chloride	1 : 10000 Killing	in 25% of cases Killing

The values of column (a) were determined by infecting a series of dilutions of the disinfectant in water with Coli bacteria and inocculating suitable nutrient media with these solutions after 5 minutes.

For the determination of the values of column (b), 1.5 g. of the glycol ethers in the form of a 50% aqueous solution were rubbed in each case for 2 minutes onto the hands, strongly infected with Coli bacteria, of various persons to be tested, the finger tips were then impressed into nutrient liquor and by bacteriological tests of the liquor it was established whether or not live Coli bacteria were still present. For testing the quaternary ammonium compounds, the hands of persons to be tested were washed for 5 minutes in 2 litres of aqueous solutions containing 1 g. of the active substance per litre; solutions of higher concentration were not applied since they are not tolerated by the skin. Subsequently examination as to live Coli bacteria was also carried out.

Instead of applying the glycol monoethers of aliphatic alcohols containing not more than 6 carbon atoms in the form of aqueous solutions, it is also possible to use them in the form of solutions in organic solvents, for instance in ethyl alcohol, in the form of pastes or ointments or without dilution; if desired, the glycol mono-ethers of aliphatic alcohols containing not more than 6 carbon atoms can also be used as skin disinfectants in admixture with other disinfecting substances, such as 3,4 - dichlorobenzyl alcohol or a disinfecting quaternary ammonium compound.

WHAT WE CLAIM IS:—

1. Skin disinfectant compositions containing as active ingredient a glycol mono-ether of an aliphatic alcohol containing not more than 6 carbon atoms and a solid carrier or a liquid carrier containing an emulsifying agent.

2. Compositions according to clam 1, wherein the alcohol from which the ether is derived is ethanol, propanol or butanol.

3. Compositions according to claim 1 or 2, wherein the carrier is water, ethanol or a suitable paste or ointment base.

4. Compositions according to any of the preceding claims, wherein other disinfecting substances are added thereto.

5. Compositions according to claim 4, wherein the additional disinfecting substance is a disinfecting quaternary ammonium compound or 3,4 - dichlorobenzyl alcohol.

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